

Appl. No. 10/709,525
Amdt. dated October 25, 2005
Reply to Office action of August 09, 2005

REMARKS/ARGUMENTS

1. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al (US 20020027634) and of Saito et al (US 20030164903) in view of the prior art (Admission).

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Response:

Claim 1 has been amended to correct a typographical error only, to facilitate prosecution. No new matter is introduced. Claims 1-8 are rejected with combinations of Kang, Saito, and the Admission for reasons of record. The applicant respectfully asserts that the amended claims 1 and its dependents are not obvious by either combination.

According to paragraphs [0036]- [0037], [0047]- [0048] and Figs. 3-4 of Kang, a liquid crystal display device having a flexible circuit board is provided. Kang teaches a flexible circuit board inclusive of a flexible base film 110 having a printed circuit board engaging portion 112 to be engaged with the printed circuit board and a liquid crystal panel engaging portion 114 to be engaged with the a liquid crystal panel. Kang further teaches a driving IC 120 mounted at the center of the flexible base film 110, which is located between the printed circuit board engaging portion 112 and the liquid crystal panel engaging portion 114. The driving IC 120 receives driving signals for driving the liquid crystal panel from outside, and transfers the driving signals to devices of the liquid crystal panel. The flexible circuit board is bent to wrap around the exterior portion of the side wall of the mold frame 160 and to adhere to the bottom surface of the mold frame 160. The mold frame 160 receives a liquid crystal display panel 140

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and a back light assembly 150.

Although Kang et al. teaches a flexible printed board, on which a driving IC is mounted for transferring driving signals, bent to wrap the mold frame, they didn't teach or suggest the LEDs replacing the driving IC on the flexible printed circuit board (FPCB) to be a back light source or suggest the corresponding penetrating openings, which are formed in the lower surface of the mold frame, for allowing the inset LEDs to be a back light source. In other words, Kang's flexible printed board and the driving IC are attached to the bottom of the mold frame which is an intact structure without corresponding openings for receiving the driving IC. Kang did not teach or suggest the LEDs of the FPCB would be inset into corresponding openings of the housing to be the back light source.

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According to paragraph [0038]- [0041] and Figs. 1, 2A and 2B, Saito teaches a liquid crystal display device comprising a mold case MLD. The mold case MLD has receiving or accommodation portions AV1, AV2 of light-emitting diodes for use as light-emitting elements formed in the inner wall of a first side edge LW1, and curved projections PJ1, PJ2 which protrude toward the inside are formed at a second side edge LW2 which is an opposite edge with respect to the first edge LW1. Saito further teaches two light-emitting diodes LED1, LED2 are used as the light-emitting elements, and are mounted on the printed circuit PCB, in a manner of being planted like upstanding trees so that their light emission portions E1, E2 face the light entry plane LP of the light guide body GLB. With the use of such structure, the pushing/pressing force generated by the curved projections PJ1, PJ2 is constantly applied to the light guide body GLB,

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resulting in the light entry plane LP being biased into continued close contact with the light emission portions of the light-emitting diodes LED1, LED2 and avoiding light leakage and irregular reflection.

- 5 Saito teaches a mold case MLD having receiving or accommodation portions AV1, AV2 for receiving the light-emitting diodes LED1, LED2. However, the accommodation portions AV1, AV2 are formed in the side edge of the mold case MLD, not in the bottom. The mold case MLD taught by Saito actually does not have a bottom, it's a cannular frame.
- 10 Furthermore, Saito teaches the light-emitting diodes LED1, LED2 mounted on the printed circuit board PCB, which can be a hard printed circuit board or a flexible printed circuit board. The printed circuit board PCB is attached to the mold case MLD, not the LCD panel, so that the light-emitting diodes LED1, LED2 are received and fitted into the
- 15 accommodation AV1, AV2 of the mold fame MLD. Even if Kang's device were to be modified to include Saito's LEDs and further include the Admission's circuit, such combination does not suggest the corresponding openings in the lower surface of the housing for receiving the LEDs as a back light source.

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From MPEP 706.02(j):

- “To establish *prima facie* case of obviousness, three basic criteria must be met. First there muse be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of
- 25 ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitation.”

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5 The applicant asserts that the claimed invention according to claim 1 is not obvious by modifying Kang' display to include Saito's LEDs and to further include the Admission's circuits by the one of ordinary skill in art, and all the limitations recited in claim 1 are not taught or suggested by the combined reference teachings either. Therefore the combination of Kang, Saito and the admission does not satisfy the three basic criteria as cited above. Reconsideration of claim 1 is politely requested.

10 Claims 2-7 are dependent on claim 1 and should be allowed if claim 1 is allowed.

15 Regarding claim 8, claim 8 recited the LCD module of claim 1 further comprising a plurality of electrical components formed below the lower surface of the FPCB. Therefore, the LEDs and the electrical components are formed on the same side. In contrast, Saito teaches driver ICs and other electronic components are mounted on the back surface of the printed circuit board with the LEDs being mounted on the opposite face (page 1 [0007]). Therefore the applicant asserts the claimed invention is different from Saito.

20 Claim 8 has been amended to correct a typographical error only, to facilitate prosecution. No new matter is introduced. Reconsideration of claim 8 is politely requested

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2. New claims

New claims 9 to 11 are introduced. Claims 9 is independent. The new claims are fully supported by the disclosure and the figures as filed. No

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new matter is entered.

Concerning the patentability of the newly added independent claim 9 with respect to the prior art of record (Kang et al.-US 20020027634; and
5 Saito et al. -US 20030164903), applicant points out that new claim 9 claims a liquid crystal module comprising a housing having a plurality of openings formed in a lower surface of said housing, an LCD panel having a display area and a peripheral circuit area, and a flexible printed circuit board (FPCB) connected to the edge of the peripheral circuit area, the FPCB
10 having an extending portion and a plurality of light emitting diodes (LEDs) connected to the lower surface of the extending portion, wherein the extending portion of the FPCB crosses the edge of the housing and the LEDs inset into the corresponding openings of the housing. As explained above, neither Kang nor Saito discloses or suggests such a structure having
15 LEDs mounted on the FPCB and inset to the corresponding openings in the housing when the FPCB is bent to cross the edge of the housing. Consideration of new claims 9-11 is respectfully requested.

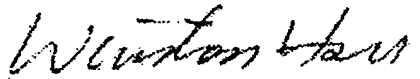
Applicant respectfully requests that a timely Notice of Allowance
20 be issued in this case.

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Sincerely yours,

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